Space Weather Forecast

Issued on Wednesday, 27 July 2022 at 01:04 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight Chance of Moderate class flare throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with an impulsive C8 flare observed at 26/1535 UTC and emanating from an active region that is now about to rotate off the northwest limb. Shortly after, a Coronal Mass Ejection (CME) was seen heading west in the available imagery. The results of the analysis are not yet fully known however it is not considered to be Earth-directed. No Earth-directed CMEs were observed.

There are eight numbered sunspot regions on the visible disc, all of which are small and simple. They remain largely unchanged, with no evident growth or proliferation of spots observed, or are slowly decaying.

Solar Wind / Geomagnetic Activity: Solar winds slowly declined through the period, weakening from 450 to 360km/s, although a slight enhancement a slight enhancement was observed overnight, allowing the solar wind speed to reach 530km/s. The magnetic field carried by the wind was mostly weak, but did have a period where its important north-south component rotated into a weakly negative (southward) direction. Geomagnetic activity was mostly Quiet, but had one Unsettled interval (Kp3) at 26/0000-0300 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Activity is likely to remain Very Low to Low with only a slight chance of moderate-class X-ray flares.

Solar Wind / Geomagnetic Activity: No CMEs have been assessed as Earth-directed. Solar winds are expected to be mostly slow-ambient from day 1 to day 3, before becoming slightly elevated at the end of day 3 then elevated on day 4, under thee influence of the HSS originating from CH04/-. Geomagnetic activity is forecast to be mainly Quiet with a chance of Unsettled intervals, then to become Unsettled or Active with an outside chance of G1/Minor storms towards the end of day 3 (29th), but more likely on day 4 (30th).

Energetic Particles / Solar Radiation: The count rate of energetic particles is forecast to remain at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	10	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	10	10	10	10
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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